

REMARKS

Claims 1-5, 7-12, 14 and 16-18 are pending in the subject application. Claims 6, and 13-15 were canceled by Preliminary Amendment when the subject application was filed. Claims 1-5 and 7-12 were previously allowed. Prior to receipt of the Final Office Action dated December 18, 2003, only claims 14 and 16-18 stood rejected.

As discussed more fully below, claims 1 and 19 are amended herein to add back previously deleted language. Accordingly, these amendments do not introduce new matter.

A. Prosecution History

This case was filed on July 20, 2001 as a §371 filing from PCT Application No. US99/24149. Simultaneously with the filing, a preliminary amendment was also filed canceling claims 6, 13 and 15, and amending the remaining claims for clarity.

In an Office Action mailed April 23, 2003 (Paper No. 8), Berbers (U.S. Patent No. 5,646,252) was cited against claims 14 and 16-18. However, Examiner Kim properly allowed claims 1-5 and 7-12.

1. Prosecution of Claim 1

Allowed independent Claim 1 (with the individual steps highlighted) read as follows:

1. A method for separating hemoglobin solution from a solution containing red blood cells within a container, the method comprising the steps of:

- (a) **separating** the red blood cells in the solution;
 - (b) **washing** the red blood cells in wash solution;
 - (c) **lysing** the red blood cells to produce stromata and a hemolysate containing hemoglobin having an ionic strength, wherein said lysing step further comprises measuring the ionic strength of the hemolysate formed by exposing the red blood cells to a hypotonic solution; and
 - (d) **separating** the hemolysate from the stromata;
- wherein steps (c) and (d) are **simultaneously carried out or sequentially repeated** until the ionic strength of the hemolysate is below a predetermined level.

The last phrase in the claim refers to the continuous nature of the preferred embodiment of the invention - the hemolysate is removed until the ionic strength reaches a predetermined level. This recital was added in the preliminary amendment as a result of combining claims 1 and 6, and canceling claim 6.

Subsequent to allowance of claim 1, and in the Response (mailed September 23, 2003) to the Office Action (mailed April 23, 2003), claim 1 was amended **solely for clarity** to recite:

1. A method for isolating hemoglobin solution from a starting solution containing red blood cells ~~within a container~~, the method comprising the steps of:
- (a) **separating** the red blood cells in the starting solution;
 - (b) **washing** the red blood cells in wash solution;
 - (c) **contacting lysing** the red blood cells with a hypotonic solution to produce stromata and a hemolysate containing hemoglobin having an ionic strength, ~~wherein said lysing step further comprises measuring the ionic strength of the hemolysate formed by exposing the red blood cells to a hypotonic solution;~~ and
 - (d) **separating** the hemolysate from the stromata;
- wherein steps (c) and (d) are **simultaneously carried out or sequentially repeated** until the ionic strength of the hemolysate is below a predetermined level.

The word "starting" was added to distinguish between the two solutions recited in the claim. The word "contacting" was substituted for the word "lysing" as being more descriptive of the step. The "hypotonic solution" recital was moved to a more appropriate place in claim c. The "measuring" step was removed as redundant, since the recital of "having an ionic strength" requires measuring it. For these reasons, the amendments to this claim should not have raised new prior art issues.

b. Prosecution of claim 19

In the September 23rd response mentioned above, new claim 19 was introduced to replace canceled claim 14. As a result, claims 16-18 were amended to depend on new claim 19.

New claim 19 read as follows (with the individual steps highlighted):

19. A method for preparing a chemically modified hemoglobin solution from a starting solution containing red blood cells, the method comprising the steps of:
- (a) **separating** the red blood cells in the starting solution;
 - (b) **washing** the red blood cells in wash solution;
 - (c) **contacting** the red blood cells with a hypotonic solution to produce stromata and a hemolysate containing hemoglobin having an ionic strength;
 - (d) **separating** the hemolysate from the stromata; and

(e) **mixing** the hemolysate with a reagent adapted to chemically modify the hemoglobin to form a chemically modified hemoglobin solution;

wherein steps (c) and (d) are **simultaneously or sequentially repeated** until the ionic strength of the hemolysate is below a predetermined level.

The only difference between new claim 19 and amended claim 1 was the preamble, and step (e) which was added to claim 19. Accordingly, to the extent claim 1 is allowable over the cited references, claim 19 which is narrower in scope, must also be allowable.

B. Claim Amendments

There are two groups of claims currently pending and currently at issue in the case: claims 1-5 which recite the four-step process for preparing hemoglobin solutions, and claims 16-19 which recite the five-step process for preparing modified hemoglobin solutions.

Applicants would like to thank Examiner Kim for giving Applicants' attorney an opportunity to conduct an interview to discuss this case on March 4, 2004. During the interview, the Examiner indicated that claims 1 and 19, and the claims depending thereon, would be allowable over the cited art if the step of "measuring the ionic strength of the hemolysate" was reintroduced into claims 1 and 19. Although Applicants believe that this step is implicit in the claims because the hemolysate must have an ionic strength, to facilitate prosecution, Applicants have amended claims 1 and 19 as requested by the Examiner.

C. Rejection under 35 U.S.C. §102(b) over Berbers

Claims 1-2 and 17-19 stand rejected as anticipated over Berbers. As mentioned above, claims 1 and 19 are the independent claims, and are identical in respect to the fact that they recite four individual steps and require that the steps (c) and (d) are repeated until the ionic strength reaches a predetermined level.

The Examiner alleges that Berbers teaches a method of preparing modified hemoglobin comprising the steps of **washing, lysing, separating**, etc. Applicants do not dispute the Examiner's characterization of the teaching of Berbers. However, claim 1 was previously allowed over Berbers, and claim 19 is narrower than claim 1. Claim 1 was previously allowed, because Berbers does not teach a continuous process. The claimed method recites repeating the washing and lysing steps until the ionic strength reaches a given level. This step is not found in Berbers.

For this reason alone, Berbers cannot anticipate claims 1 and 19. Accordingly, claims 2 and 17-18 which depend on claims 1 and 19, respectively, are also not anticipated by Berbers. However, for the reasons discussed above and in view of the amendments presented herein, this rejection is rendered moot.

Rejection of claims 3-4 under 35 U.S.C. §103(a) over Berbers and Sehgal

Claims 3-4 also stand rejected as obvious over Berbers and Sehgal. These claims have an added recital of an agent to kill bacteria (claim 3) or an agent to remove or inactivate organisms (claim 4). However, claims 3-4 cannot be obvious over Berbers and Sehgal if Berbers does not anticipate claim 1. Since it is Applicants' position that Berbers does not anticipate claim 1, the combination of Berbers and Sehgal cannot render claims 3 and 4 obvious. However, for the reasons discussed above and in view of the amendments presented herein, this rejection is rendered moot.

Rejection under 35 U.S.C. §103(a) over Berbers and Sehgal

Claim 16 also stands rejected as obvious over Berbers and Sehgal. Claim 16 recites that the hemoglobin is modified with polyethylene glycol. However, for the same reasons just discussed, the combination of Berbers and Sehgal cannot render claim 16 obvious unless Berbers anticipates claim 19 on which it depends. However, for the reasons discussed above and in view of the amendments presented herein, this rejection is rendered moot.

Claim 5 objection

Claim 5 is objected to as being dependent on a rejected base claim. However, this objection will be rendered moot if the underlying rejection of claim 1 is withdrawn.

CONCLUSION

Applicants believe that the amendments and remarks presented herein place this case in condition for allowance. In the event that the Examiner believes that a telephone conversation with the undersigned attorney would expedite allowance, the Examiner is invited to call her at 1-619-446-5622.

If the Patent Office determines that any additional fees are required, the Commissioner is hereby authorized to charge the required fees to Burns Doane Swecker & Mathis LLP **Deposit Account No. 02-4800** referencing Attorney Docket No. 034107-019.

Respectfully submitted,

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